

REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1 to 18 with claims 7 to 18 being withdrawn from consideration.

Thus, Applicants hereby affirm the election of Group I and this election is without traverse.

Further, as the elected species, Applicants hereby affirm the election of m-xylylenediamine as the aliphatic diamine, and salicylic acid as the curing accelerator, in claims 1-6.

Claims readable on the elected species are 1 to 6.

With regard to the rejection in Official Action paragraph 5, the term “obtainable” as been changed to “obtained”, per the Examiner’s suggestion.

With regard to Official Action paragraph 6, the Examiner’s suggestion has been adopted by the above amendment.

Claims 1 to 6 have been provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 2, 5, 7 and 12 of copending Application No. 10/669,701 as represented by Koyama et al. Publication No. 2004/0106684 in view of CAPLUS accession no. 1990:425027 (the Kobunshi Ronbunshu article by Tanaka et al.) and European Patent No. 447,440.

This rejection is respectfully traversed.

The rejection indicates that Koyama et al. claims an addition product of a cyclic aliphatic polyamine and styrene which is the same as the addition product of the present invention, and in addition, Tanaka et al. and EP 477,440 both disclose a curing accelerator for epoxy resins which is the same as the curing accelerator of the present invention.

However, the diamine components of curing agents for epoxy resins used in Tanaka et al. and EP 477,440 are very different from that of the present invention. Thus, the diamine component disclosed in Tanaka et al. is an aromatic polyamine such as m-xylylenediamine. The diamine component disclosed in EP 477,440 is an aromatic polyamine such as 2, 4, 6-trimethyl-m-phenylenediamine (TMPDA). On the other hand, the diamine component used in the present claims is an addition product of a diamine represented by the formula (1) and styrene. Neither of

Tanaka et al. and EP 477,440 disclose or suggest the specific diamine component of the present invention.

The distinguishing characteristic of the present invention is that an excellent curability at low temperature and water resistance of a cured coating film can only be achieved by using a curing agent comprising the combination of the specific diamine component and the claimed curing accelerator such as salicylic acid.

Comparison with the diamine of Tanaka et al.

When using a curing agent comprising the combination of polyamines such as m-xylylenediamine and salicylic acid disclosed in Tanaka et al., the cured epoxy resin does not exhibit excellent curability at low temperature compared to one using the combination of the present invention.

In addition, when using a curing agent comprising the combination of polyamines such as m-xylylenediamine and salicylic acid disclosed in Tanaka et al., the cured epoxy resin does not exhibit excellent water resistance of the cured coating film compared to one using the combination of the present invention.

The reason for these results is not necessarily clear but it can be supposed that one of the reasons may be that the combination of the addition product of the present claims and an acid such as salicylic acid is more resistant to generating a salt compared to the combination of Tanaka et al., because water solubility of the addition product of diamine and styrene is lower than that of the diamine of Tanaka et al.

On the other hand, since the diamines such as m-xylylenediamine of Tanaka et al. are higher in water solubility and easier to dissociate compared to the addition product of the present invention, the combination of the diamines and an acid easily generates a salt which has a tendency to deteriorate the curability at low temperature.

Since Tanaka et al. does not disclose anything about a curability at low temperature, the present invention characterized by excellent low-temperature curability cannot be obvious from Koyama's claims and Tanaka et al.

EP 477,440 does not overcome the above-discussed deficiencies of the double patenting rejection.

Comparison with the diamine of EP 477,440

When using a curing agent comprising the combination of aromatic polyamines such as TMPDA and salicylic acid disclosed in EP 477,440, the cured epoxy resin does not exhibit excellent curability at low temperature compared to the one using the combination of the present invention.

In order to demonstrate this fact, see the attached Rule 132 Declaration of Mr. H. Kuwahara, the first-named inventor herein, which presents comparative experiments.

The result of the experiments shown in Table 4 indicates that, in the case of a curing agent using TMPDA of EP 477,440 as a diamine component, addition of a curing accelerator such as salicylic acid does not bring about any improvement in curability under the condition of low temperature.

In addition, according to the disclosure of EP 477,440, the evaluation of curability seems to be carried out under the condition of heat curing, not low-temperature curing. Therefore, the present composition characterized by excellent low-temperature curability, cannot be anticipated or rendered obvious by the teaching of EP 477,440 alone or combined with Koyama's claims and EP 477,440.

As discussed above, since the specific addition product of the present invention is not disclosed or suggested by Tanaka et al. and EP 477,440 and the low-temperature curability achieved by the specific combination of the present invention is not predicted or obvious from Tanaka et al. and EP 477,440, it would have not been obvious to combine the salicylic acid of Tanaka et al. and EP 477,440 with the addition product of Koyama et al.'s claims to arrive at the present claims.

Accordingly, the double patenting rejection on Koyama in view of Tanaka and EP 477,440 is untenable and should be withdrawn.

Claims 1-6 have been rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5 and 12 of Ichikawa et al. (US 6,908,982).

This rejection is respectfully traversed for the same reasons as set forth above for the double patenting rejection of Applicants' copending Application No. 10/669,701 (Koyama et al.) in view of Tanaka and EP 477,440.

Claims 1-6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Yonehama et al. (US 6,562,934), Japanese Patent No. 2004-18711 and Ichikawa et al. (US 6,908,982) in view of Tanaka et al. and the European patent.

This rejection is also respectfully traversed.

Ichikawa has an effective date of June 18, 2003 and is antedated by Applicants' Japanese priority application JP 2003-035487 filed February 13, 2003. An English translation of Applicants' Japanese priority application with Translator's statement of accuracy of the translation is enclosed.

Thus, Ichikawa is unavailable as prior art.

Likewise, JP 2004-18711 with an effective date of January 22, 2004 is also antedated by Applicants' Japanese priority application, as noted in Official Action paragraph 14.

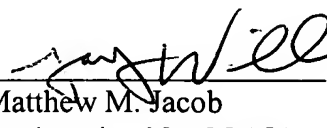
Accordingly, the prior art rejection on Yonehama in view of JP 2004-18711, Ichikawa in view of Tanaka and the European patent is untenable and should be withdrawn.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned at the telephone number below.

Respectfully submitted,

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